

**CLAIMS:**

1. A breathing circuit component or connector having an interior for conveying respiratory gas comprising

a sensor entry port configured to receive a sensor

a locating depression configured to receive a complementary locating tooth from a sensor, the interconnection of said depression and a tooth providing a predetermined orientation of a sensor within said interior.

2. A breathing circuit component as claimed in claim 1 further comprising a sensor for locating within said port including:

sensor housing adapted for positioning in said gas flow, said sensor housing having a longitudinal axis substantially perpendicular to said humidified gases flow and a sensing end,

a locating tooth configured to mate with said depression

at least one projecting tab, extending laterally from said sensor housing, said at least one projecting tab providing surfaces which enable liquid condensate to disperse away from said sensing end of said sensor housing.

3. A breathing circuit component as claimed in claim 2 wherein said sensor comprise two projecting tabs.

4. A breathing circuit component as claimed in claim 2 or claim 3 wherein said two projecting tab are oppositely positioned around said sensor housing.

5. A breathing circuit component as claimed in claim 2 or claim 3 wherein each said at least one projecting tab is aligned parallel to said gas flow.

6. A breathing circuit component as claimed in claim 2 or claim 3 wherein liquid condensate is dispersed along the lines of intersection between said sensor housing and said at least one tab, there existing a localised area of low surface

tension along said lines of intersection.

7. A breathing circuit component as claimed in claim 2 or claim 3 wherein said a sensor comprise two sensor housings, a temperature sensor housing means and a flow rate sensor housing.

8. A breathing circuit component as claimed in claim 7 wherein said temperature sensor housing and said flow rate sensor housing each comprise a temperature dependent resistance.

9. A breathing circuit component as claimed in claim 8 wherein temperature dependent resistance is occasionally heated to a predetermined difference temperature above the temperature of said gases flow, and the power required to maintain said predetermined difference temperature providing an indication of the flow rate of said gas.

10. A breathing circuit component as claimed in claim 7 wherein said flow rate sensor housing is exposed at or near the sensing end while said temperature sensor housing is encapsulated at or near the sensing end of the temperature sensor housing.

11. A breathing circuit component as claimed in claim 9 wherein said temperature and flow rate sensor housing are spaced across said gas flow in order that heat produced from said flow rate sensor housing has substantially minimal effect on said temperature sensor housing.

12. A breathing circuit component as claimed in claim 11 wherein said flow rate sensor housing is positioned up stream of said temperature sensor housing in order that heat produced by said flow rate sensor housing does not effect said temperature sensor housing.

13. A breathing circuit component as claimed in claim 2 or claim 3 wherein said gases flow is channelled within a conduit of known cross-sectional area, at least in the region adjacent said sensor, and is provided with said sensor entry port adapted to receive said sensor, the positioning of said temperature and flow rate sensor housing relative to said gas flow being controlled by the interconnection of said locating depression and tooth.
14. A breathing circuit component or connector having an interior for conveying respiratory gas comprising
  - a gas inlet communicating with said interior configured to connect to an outlet of a humidifier or other breathing assistance apparatus,
  - a gas outlet communicating with said interior and configured to connect to a conduit,
  - a sensor entry port configured to receive a sensor
  - a locating depression configured to receive a complementary locating tooth from a sensor, the interconnection of said depression and a tooth providing a predetermined orientation of a sensor within said interior.
15. A breathing circuit component as claimed in claim 14 wherein sensor entry port comprises an annular cylinder having an passage communicating with and extending from said interior, said passage substantially perpendicular to said interior.
16. A breathing circuit component as claimed in claim 15 wherein said locating depression comprising a notch in the end of said cylinder distant said interior.
17. A breathing circuit component as claimed in claim 16 wherein said notch is substantially "V" shaped.
18. A breathing circuit component as claimed in claim 17 wherein the base of said "V" shaped notch is rounded.

19. A breathing circuit component as claimed in claim 18 wherein the diameter of said passage ensures a substantially airtight seal against a sensor located therein.
20. A breathing circuit component as claimed in claim 19 wherein said inlet including an exterior surface comprising a tapered male portion configured to connect to a tapered female portion of an inner surface of an outlet of a humidifier, or other breathing assistance apparatus.
21. A breathing circuit component as claimed in claim 20 wherein outlet including an inner surface configured to form a substantially airtight seal against an exterior surface of a conduit.
22. A breathing circuit component as claimed in claim 21 wherein said inner surface and said exterior surface of said conduit are permanently bonded.
23. A breathing circuit component as claimed in claim 22 further comprising a flow sensor having a substantially cylindrical exterior configured to form an airtight seal against said passage, a sensing end and a locating tooth configured to mate with said locating depression and locate said sensing end in a predetermined location or orientation within said interior.
24. A breathing circuit component as claimed in claim 23 wherein said tooth is substantially "V" shaped.
25. A breathing circuit component as claimed in claim 24 wherein the base of said "V" shaped tooth is rounded.